Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

B.Tech. (Electronics & Electrical Engineering)(Sem.–4)

DIGITAL ELECTRONICS

Subject Code :BTEEE-401-18

M.Code :77574

Date of Examination : 02-07-22

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a. Discuss the need of digital system.

b. What do you mean by tri-state logic? Discuss.

c. How combinational circuits are different from sequential circuits? Explain.

d. Discuss the significance of multiplexer.

e. List the advantages of QM method.

f. State DeMorgan's theorems.

g. What do you mean by MOD of a counter? How many flip -flops are required for MOD-10 counter?

h. What is the need of S/H circuit? Discuss.

i. Write down the various characteristics of digital ICs.

j. List the advantages of dual slope type A/D converter.

SECTION-B

2. Prove that NAND and NOR gates are universal gates.

3. Reduce the following expression to simplest Sum of product form using K-Map method Σm (2,3,5,7,10,13,14).

4. Draw the logic diagram and explain the working of a 4 bit synchronous counter.

5. In an industryfour operations- Temperature, Pressure, Level and Humidity are to be encoded. Design a priority encoder in which Temperature must have the highest priority then Pressure followed by Level and Humidity is having the lowest priority.

6. Discuss the working of counter type A/D converter in detail.

SECTION-C

7. Discuss the working of :

   a) R-2R D/A converter.

   b) BCD adder.

8. Draw the logic diagrams and explain (in detail) the working of SR, JK, D and T flip-flops.

9. Explain Fan out, Fan in, Current and voltage parameters *w.r.t.* logic families. Discuss TTL and MOS logic families. Also, compare these logic families on the basis of propagation delay, noise immunity, Fan out, Fan in and power dissipation.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.